

## United States Patent [19]

Miyahara et al.

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[54] HEAT SINK AND ELECTRONIC DEVICE  
EMPLOYING THE SAME

## FOREIGN PATENT DOCUMENTS

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## [57] ABSTRACT

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A fan-motor-incorporated heat sink effectively supplies cooling air flow in a thin electronic device having limited space above the heat sink. The heat sink enables air intake above the heat sink by positioning a fan, the fins of a heat sink substrate and the side wall of the substrate lower than the fan driving unit. The heat sink substrate and the fins are formed such that air is exhausted only in one direction. A cover is provided on the side of the heat sink substrate on which the fan driving unit is mounted and to which air is taken in to prevent exhausted air from being taken in. The structure of the electronic device is positioned close to the upper surface of the fan driving unit on the heat sink. Thus, the heat sink can be installed on a thin electronic device while improving the cooling of a heat emitting element.

## [56] References Cited

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11 Claims, 4 Drawing Sheets

